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Florida Agricultural Experiment Station.

CABBAGE BLACK ROT.

By H. S. Fawcett.

The disease of cabbage, known as "black rot," which is due to the bacterium, *Pseudomonas campestris*, has for several years caused serious losses to the cabbage, cauliflower, and rutabaga crops of this State. It is also a destructive disease in other parts of the United States where cabbages are grown in large quantities for the market. Scientific investigations have brought out some practical ways of preventing the disease. These preventive measures, in so far as they can be made applicable to Florida conditions, are here given.

HOW TO PREVENT BLACK ROT.

Seed-Beds—The seed-beds should be prepared in fresh soil, in which no plants of the cabbage family (cabbage, rutabagas, cauliflowers, collards, turnips, radishes, kale, mustard, etc.) have been growing. This is necessary because the bacteria live from one season to another in decayed cabbages, or old soil, and probably in some ordinary field weeds related to the cabbage.

Seeds—The seeds should be treated before planting. Put them in a cloth sack and lower the sack for fifteen minutes into a solution of corrosive sublimate (one part to one thousand parts of water); then spread the seeds out to dry, not allowing the direct rays of the sun to fall upon them. Do not use a metal vessel, as this would be corroded. Corrosive sublimate tablets may be bought from druggists, and one tablet is sufficient to treat a pound of cabbage seed. This treatment of the seed will not injure its vitality. Prof. F. C. Stewart, of the New York Experiment Station, has proved that the bacteria causing black rot may remain alive on dry seed for as much as eight to eleven months. He also found living bacteria of black rot on seeds bought from reliable seedsmen. It is probable that the disease was first brought into Florida vegetable fields on the seed.

Planting Out—The plants should be set out, as far as possible, in ground that has not been planted in cabbage, or closely related plants during the previous season; and never in soil on which refuse plants related to the cabbage have been allowed to rot.

Fertilizing—The use of stable manure or compost should be avoided since such manures are known to cause fields to remain infected, by keeping the bacteria alive from one season to another. The potash in the commercial fertilizer should be slightly increased, as this will probably harden the plants and make them less liable to an attack of the disease.

Destroying Infected Plants—As soon as any plants show the disease, they should be taken out and destroyed at once. This is suggested because

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insects carry the disease from one plant to another, and it is probable that the wind also distributes it over the fields by blowing dust from infected plants to those that are still healthy.

CLEANING TOOLS—All tools and implements that have been used in infected soil should be sterilized by wiping them with a dilute solution of crude carbolic acid, before using them in newly planted soil. At the very least, implements should be scoured bright before using them in the new field. The bacteria could easily be carried from an old field into the newly-set field on soil that was allowed to remain on cultivators and other implements.

PREPARING FOR THE NEXT SEASON—As soon as the next crop is marketed all refuse cabbage plants and old stubs that remain in the field, should be completely destroyed, either by plowing under, or better, after removal from the field. All plants of the cabbage family should also be prevented from living over in the fields that are to be used for cabbages in the future.

ROTATION CROPS—The cleared field should be planted to crab grass, beggarweed, or velvet beans. These crops are not subject to the black rot disease, and will keep the soil in good condition for the next year's crop of vegetables, as well as help to starve out the black rot bacteria in the soil.

The prevention of the disease, and its eradication from infected fields, depend upon the strict following out of these eight points. The neglect of any one point may be fatal to success. If, however, these lines of action are followed, it may be expected that the loss from the disease will be greatly diminished.

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